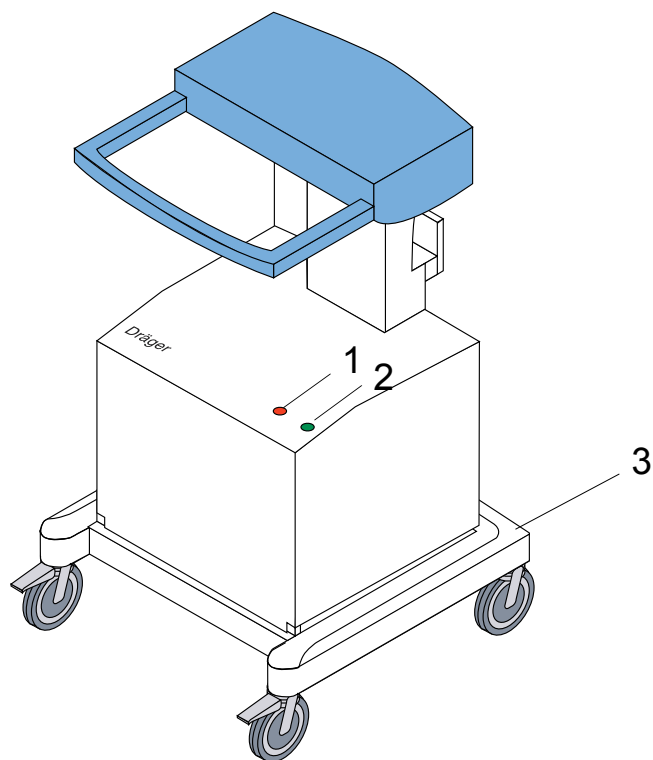


# Repair Instructions

## 1 Service strategy

	Test	Repair
Inspection	PMS Procedure	Minor repair  Filter replacement, if necessary  Hoses  Fuses
On-site repair	PMS Procedure	Assembly replacement
Branch/Agency (workshop)	PMS Procedure	Assembly replacement
Lübeck (workshop)	PMS Procedure	Assembly replacement

## 2 Front view of the medical air compressor

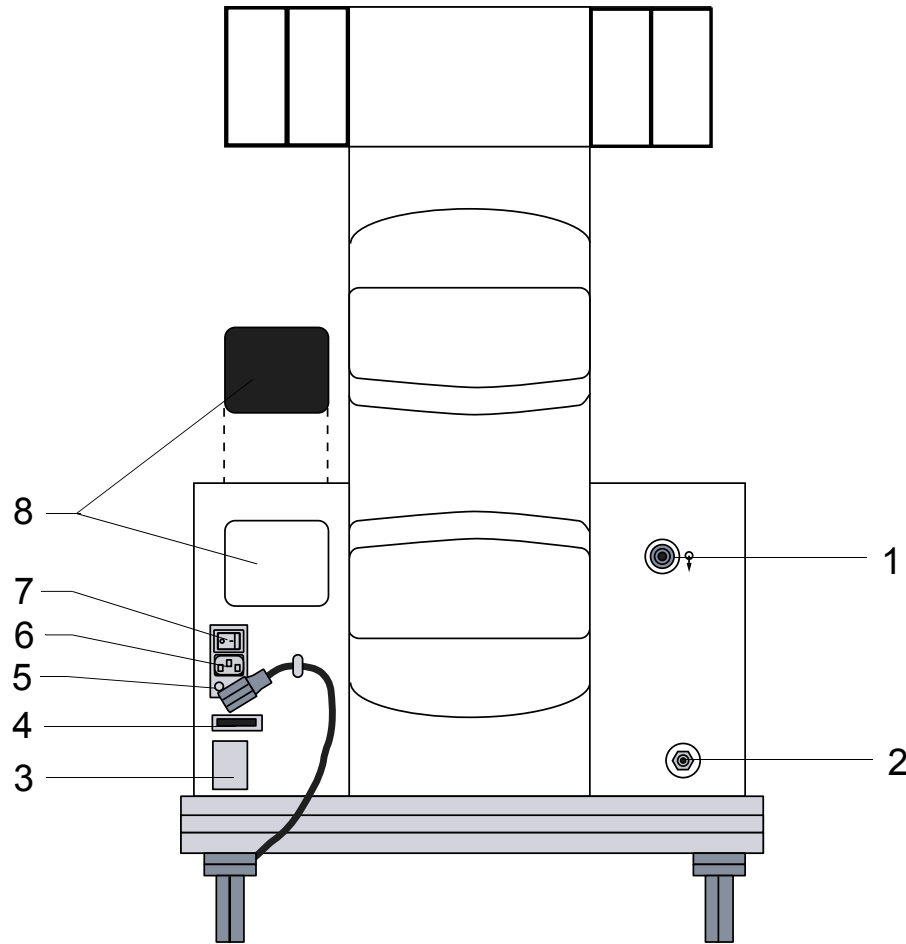


**Fig. 1** Front view of the medical air compressor

### Legend

- 1 Red "Overheat" indicator lamp
- 2 Green "Standby" indicator lamp
- 3 Trolley

### 3 Rear view of the medical air compressor

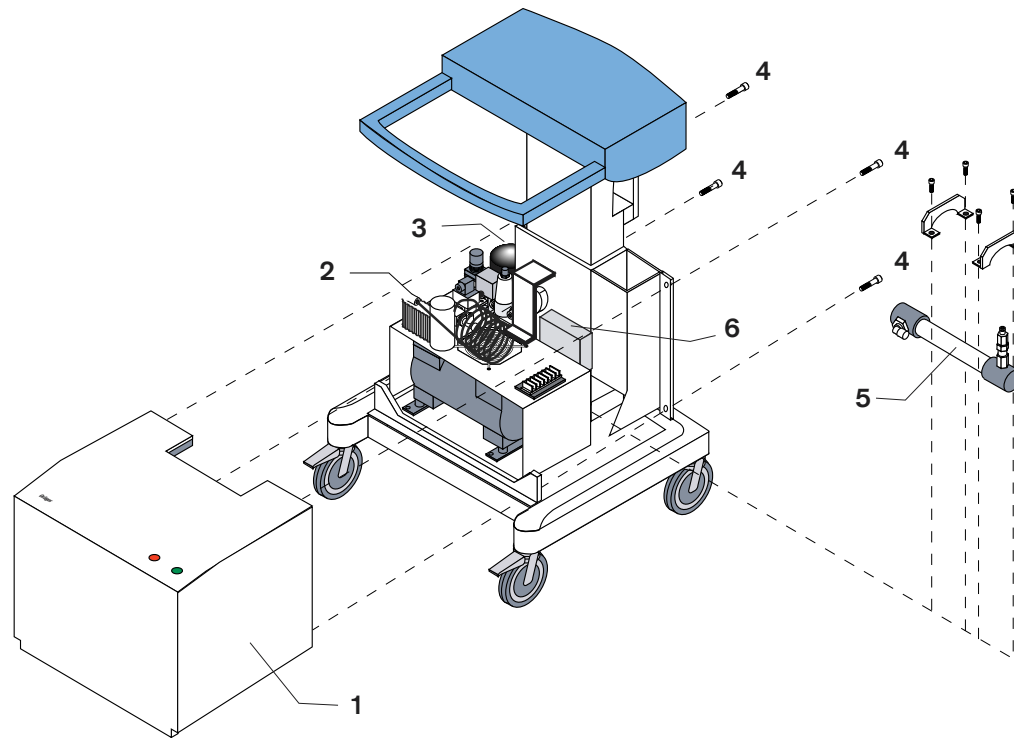


#### Legend

- 1 Connection for a ventilator
- 2 Standby (optional connection for central supply system)
- 3 Typeplate
- 4 Operating hours counter
- 5 Power fuses
- 6 Mains connection
- 7 ON/OFF switch
- 8 Suction channel with filter

**Fig. 2** Rear view of the medical air compressor

## 4 Layout of the assemblies (1)

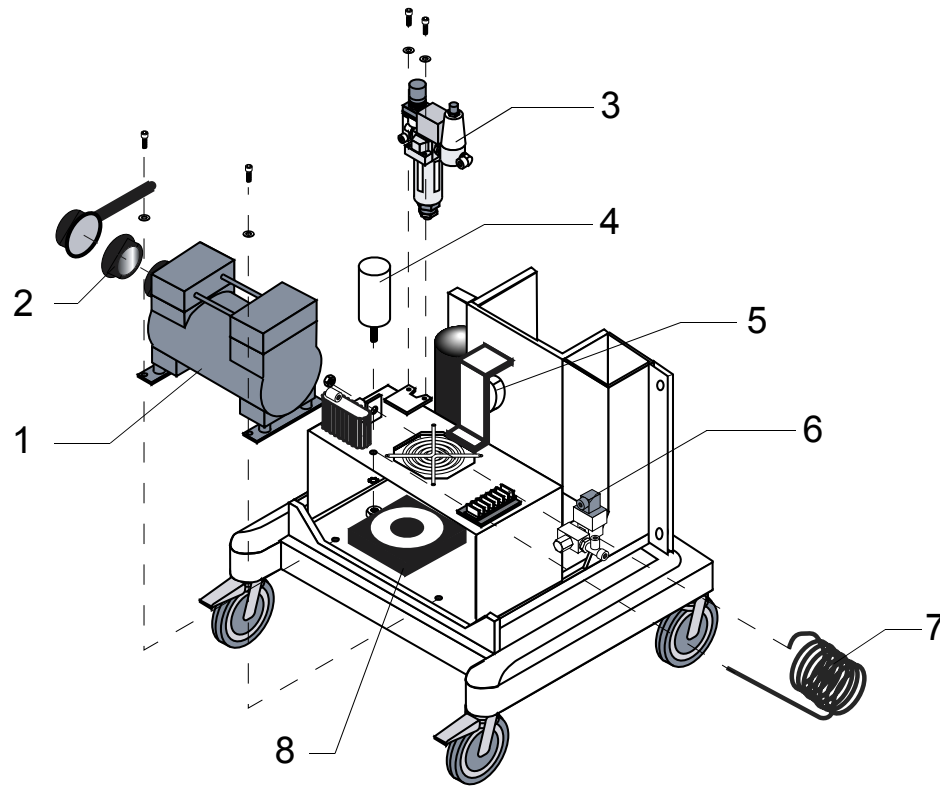


### Legend

- 1 Protective cover
- 2 Heat exchanger
- 3 Pressure vessel
- 4 Fixing screws
- 5 Diaphragm drier
- 6 Pressure switch (switchover optional)

**Fig. 3** Layout of the assemblies (1)

## 5 Layout of the assemblies (2)



### Legend

- 1 Compressor
- 2 Suction filter
- 3 Filter assembly (prefilter and main filter)
- 4 Starting capacitor
- 5 Buzzer
- 6 Solenoid
- 7 Cooling coil
- 8 Fan

**Fig. 4** Layout of the assemblies (2)

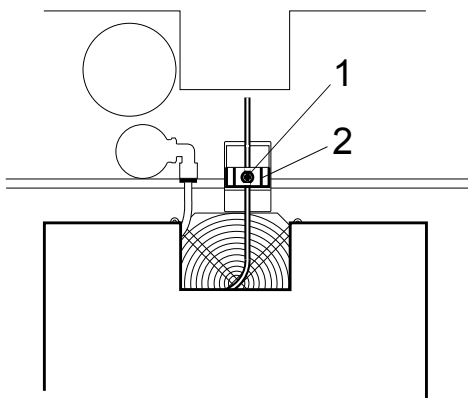
## 6 Opening the medical air compressor



Hazardous voltage. Touching live components can lead to serious injury or death.

**Pull the power plug out of the AC outlet before opening the device.**

- 1 Remove the fixing screws from the cover, see [Fig. 3](#).
- 2 Carefully pull the protective cover back until the cable of the indicator lamp can be accessed.
- 3 Unscrew the Phillips screw ([Fig. 5/1](#)) from the connector.
- 4 Pull out the connector ([Fig. 5/2](#)).
- 5 Remove the protective cover completely.



**Fig. 5** Indicator lamp connector

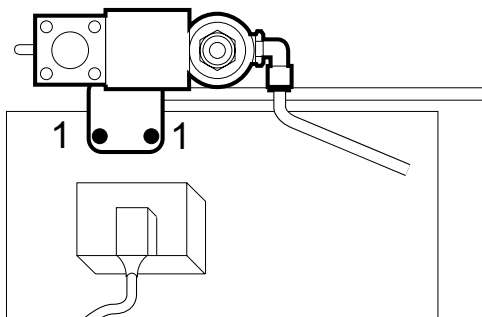
## 7 Replacing the filter sleeves of the prefilter and main filter

The following replacement description of the prefilter and main filter refers to the maintenance kit 84 11 546 (see also "[Change information](#)" and PMS procedure).

For a replacement description of the new prefilter and mainfilter (maintenance kit 84 14 501), see the Instructions for Use under "[Maintenance intervals/Removing the filter group](#)".

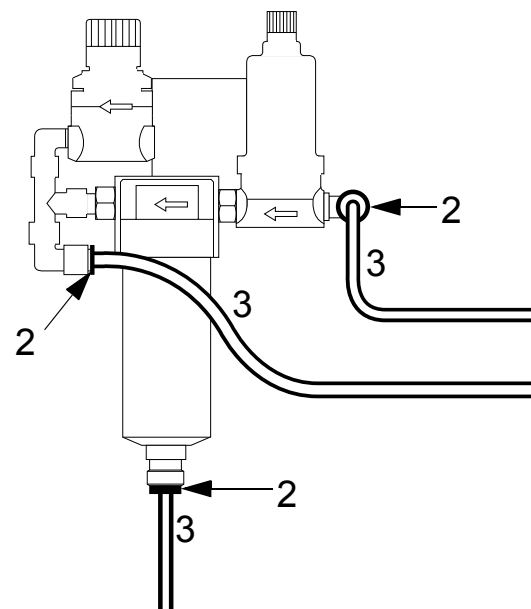
### 7.1 Removing the filter assembly

- 1 Unscrew fixing screws of protective cover, for fixing screws see [Fig. 3](#).
- 2 Open the unit, see [6](#).
- 3 Unscrew both Phillips screws ([Fig. 6/1](#)).



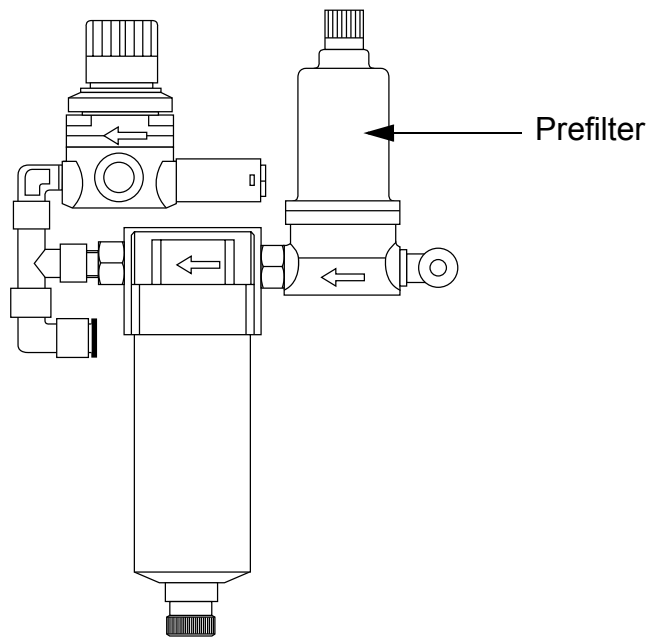
**Fig. 6** Removing the filter assembly

- 4 Push ring ([Fig. 7/2](#)) back and hold.
- 5 Remove hoses ([Fig. 7/3](#)).
- 6 Remove the filter assembly.



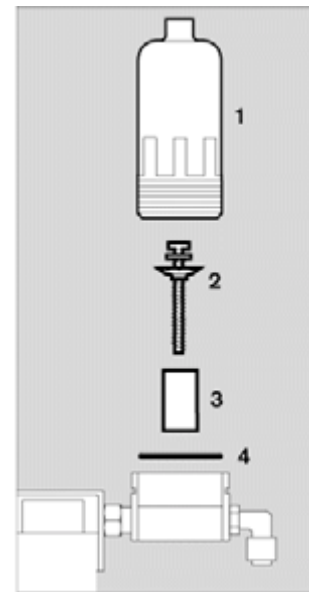
**Fig. 7** Removing the filter assembly

## 7.2 Replacing the filter sleeve of the prefilter



**Fig. 8** Prefilter

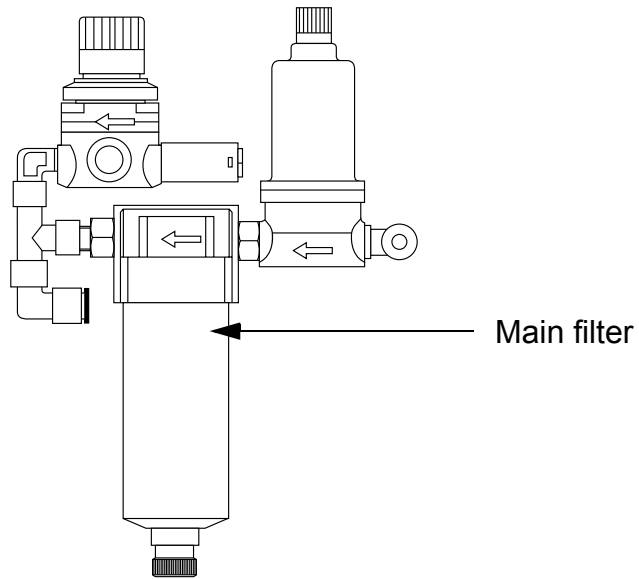
- 1 Unscrew housing (Fig. 9/1) by hand.
- 2 Unscrew clasp nut (Fig. 9/2).
- 3 Remove filter sleeve (Fig. 9/3) and replace with new one.
- 4 Tighten clasp nut (Fig. 9/2).
- 5 Remove O-ring (Fig. 9/4) from housing and replace it with a new one.
- 6 Tighten housing (Fig. 9/1) by hand.



**Fig. 9** Replacing the filter sleeve

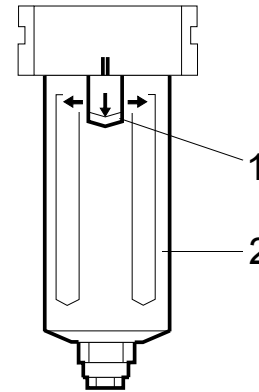


### 7.3 Replacing the filter sleeve of the main filter



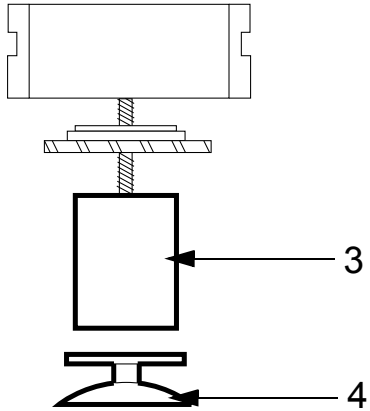
**Fig. 10** Main filter

- 1 Pull interlock (Fig. 11/1) downwards and hold.
- 2 Rotate housing (Fig. 11/2) until markings (II) are aligned.
- 3 Remove housing (Fig. 11/2).



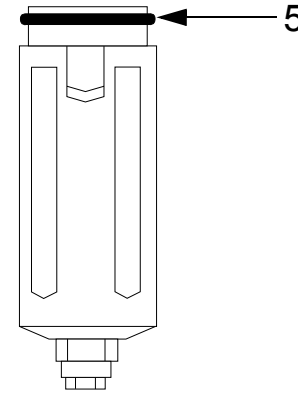
**Fig. 11** Removing the main filter housing

- 4 Unscrew clasp nut (Fig. 12/4).
- 5 Remove filter sleeve (Fig. 12/3) and replace with new one.
- 6 Tighten clasp nut (Fig. 12/4).



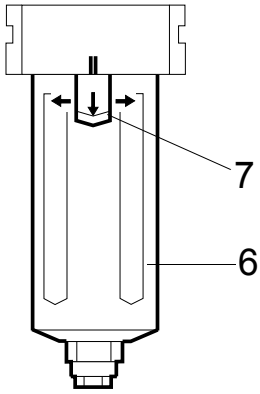
**Fig. 12** Replacing the filter sleeve

- 7 Remove O-ring (Fig. 13/5) from housing and replace it with a new one.



**Fig. 13** O-ring of the main filter

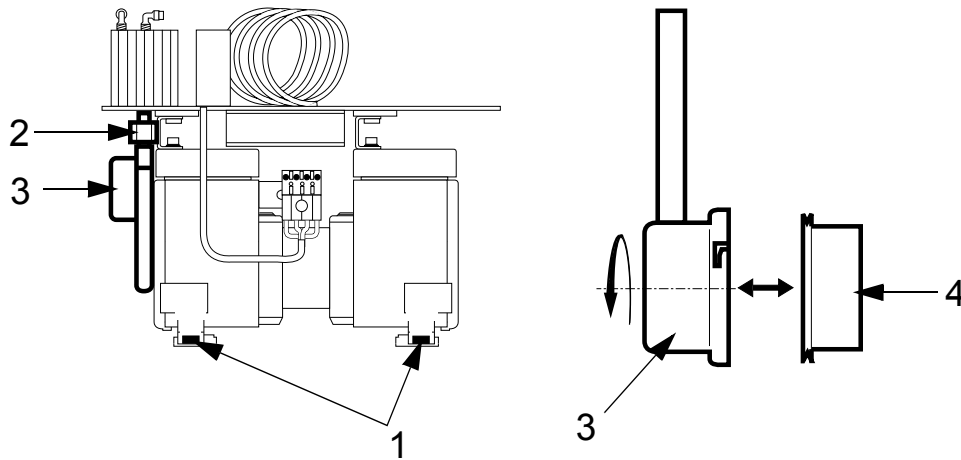
- 8 Fit housing (Fig. 14/6) and rotate until markings (II) are aligned and interlock (Fig. 14/7) engages audibly.
- 9 Pull housing (Fig. 14/6) slightly downwards to check whether it is securely engaged.



**Fig. 14** Locking the main filter housing in place

## 7.4 Replacing the suction filter

- 1 Unscrew both Allen screws (Fig. 15/1).
- 2 Unscrew pressure hose (Fig. 15/2) using open-end wrench WAF 19.
- 3 Pull compressor out until filter housing (Fig. 15/3) becomes accessible.
- 4 Rotate filter housing (Fig. 15/3) clockwise and remove.
- 5 Remove suction filter (Fig. 15/4) and replace with new one.



**Fig. 15** Replacing the suction filter

- 6 Re-install the suction filter (Fig. 15/4).
- 7 Re-install the compressor.

## 7.5 Fitting the filter assembly

Fit the filter assembly using the reverse method as used for disassembly.

## 8 Standby switch of the medical air compressor (8413419)

### 8.1 Resetting the working pressure range

- 1 Set up a ventilator including test circuit.
- 2 Connect to gas supply.
- 3 Connect external pressure regulator/gauge to standby inlet. (Gas inlet connector is located at rear panel in the upper right area)
- 4 Connect the AIR central supply hose to the pressure regulator hose.
- 5 Connect the AIR supply of the compressor/ventilator.



Do not connect to the O2 central supply. Do not connect to mains power supply yet.

- 6 Remove the four screws from the rear panel of the compressor.
- 7 Slide protective cover of compressor open (about 25 cm).
- 8 Remove dark plastic cover from standby switch (located directly behind the transformer on the right side and is secured with 2 screws).



**Fig. 16** Medical air compressor, open

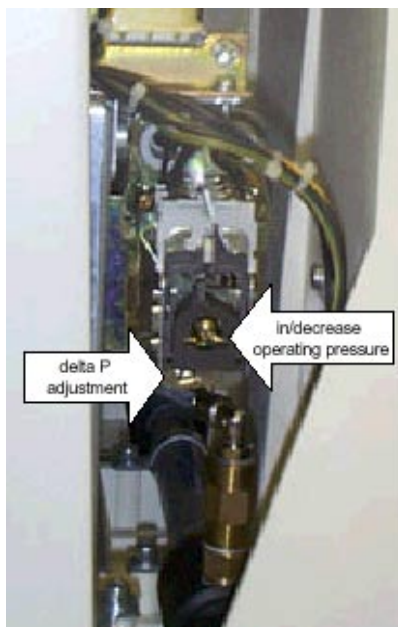
- 9 Connect ventilator and compressor to mains power supply.
- 10 Switch compressor on.
- 11 Switch ventilator to standby mode and activate Service Mode to monitor internal pressures.
- 12 Measure current switching points and set delta P to <15psi (<1 bar) (adjusting screws is located in the lower portion of the switch).



With compressors that were shipped world-wide, proceed to work steps 13 to 17.

With compressors that were sold in the USA (as of serial number ARSB-0001), proceed to work steps 18 to 22.

- 13 Measure switching point and set starting pressure to 35 psi / 2.4 bar using external pressure regulator (adjusting screw is located in the center portion of the switch).

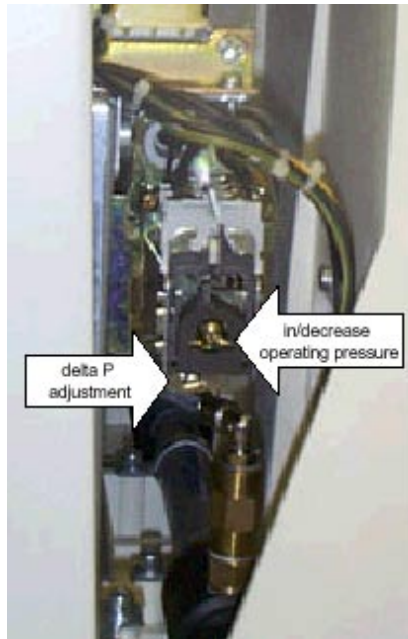


**Fig. 17** Setting the working pressure



Compressor should start before the "AIR supply insufficient" alarm is triggered.

- 14 Measure switching point and set switch-off pressure to 50 psi / 3.4 bar using external pressure regulator (adjusting screw is located in the center portion of the switch).
- 15 Check settings of starting pressure (35 psi / 2.4 bar) and switch-off pressure (50 psi / 3.4 bar) under flow conditions as specified in the PMS Procedure (ventilator settings: CMV, flow max. (AutoFlow off), Vt max., rate 15, FiO2: 21).
- 16 Reassemble standby switch and compressor.
- 17 Remove external pressure regulator/gauge.
  
- 18 Measure switching point and set starting pressure to 40 psi  $\pm$  1.5psi (2.7 bar  $\pm$  0.1 bar) using external pressure regulator (adjusting screw is located in the center portion of the switch).



**Fig. 18** Setting the working pressure



Compressor should start before the "AIR supply insufficient" alarm is triggered.

- 20 Check settings of starting pressure (40 psi / 2.7 bar) and switch-off pressure (46 psi / 3.2 bar) under flow conditions as specified in the PMS procedure (ventilator settings: CMV, flow max. (AutoFlow off) , Vt max., rate 15, FiO2: 21).
- 21 Reassemble standby switch and compressor.
- 22 Remove external pressure regulator/gauge.

- 19 Measure switching point and set switch-off pressure to 46 psi  $\pm$ 1.5 psi (3.2 bar  $\pm$ 0.1 bar) using external pressure regulator (adjusting screw is located in the center portion of the switch).

## 9 Change information



This change information is for information only, built-in components are only replaced with new versions in case of repair.

### 9.1 Prefilter housing

As of serial number ARML-0020, the prefilter housing is made of metal.

### 9.2 Thermostat (part of starter relay 84 12 856)

To avoid frequent alarms, the thermostat has been set from 40 °C to 75 °C. This change has been implemented in devices from serial number ARMM-0054 (84 13 900) or ARMN-0101 (84 13 419), respectively.

### 9.3 Glow lamps

Due to a change in the circuit of 110 V compressors, defective glow lamps will be replaced only with 230 V glow lamps (Red glow lamp: 8413869, green glow lamp: 8413870).

Due to a change to the cable harness, only the green 110 V glow lamp is used in US compressors as of serial number ARSB-0001.

### 9.4 Starter relay

The starter relay has been provided with a new timer. This change has implemented in series units starting with the following serial numbers: ARNJ-0088 (8413900), ARNJ-0017 (8413419), and ARNK-0031 (8413893).

### 9.5 Filter unit, new (84 14 502 / see also Service Bulletin no. 1)

To protect the diaphragm drier more efficiently, the filter unit has been equipped with a finer fine filter. A new maintenance kit is also available for the new filter unit. This change has been implemented in series units starting with serial number ARMJ-0020.

Further information: According to Technical Service Bulletin no. 1, this filter unit has to be replaced as well when a faulty diaphragm drier is replaced (a notice to do so has to be attached to the outside of the unit) because the new maintenance kit, P/N 8413501, has to be installed, too.



## 9.6 Standby, changed setting of working pressure range

The pressure range has been changed (as described in the Repair Instructions, section 8) due to the pressure supply of 3 bar available in different countries. The pressure range has been changed in compressors as of serial number ARPB-0001. At the same time, a modified non-return valve (no spare part) has been installed in the storage.

## 9.7 Registration of compressors

As of serial number ARPD-0001, compressors are subject to registration. The units are shipped with new Instructions for Use/Operating Instructions containing the changed pressure settings.